

SHIBUYA STATION:  
A CORE COMPONENT IN AN URBAN REDEVELOPMENT PLAN

A CREATIVE PROJECT  
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## Introduction

Losing direction in the central area of Shibuya Ward, a sub-center city located in the west part of Tokyo, is a common experience for a lot of visitors when they first arrive the place by public transportation. It is not because people lack a sense of direction, but the construction of Shibuya Station and context of the area around it are extremely complex, like a huge labyrinth. After observing and interviewing visitors in Shibuya's central area, Shin'ichi Konomi, an associate professor at University of Tokyo, wrote in his report that even locals admit that "they can still get lost even though they have been to the area hundreds of times" (Konomi, 2014).

For this experience, some people think it is an interesting walking experience for exploring new things, but the other people think it is a big problem in the urban development process – limited accessibility. These two attitudes depend on the different types of visitors: the emergence of this problem creates interesting aspects to explore. However, just as a literary quotation says, "Rome was not built in a day," the current issue is the outcome of the accumulation of development. So, in order to understand the context of Shibuya Station and the area around it, reviewing the historical development of Shibuya is a key component.

# Literature Review

## Historic Development of Shibuya

Shibuya was a suburban area during the Edo Period with large farmlands, fields, and woodlands. The main resident at that time were samurai, because of Edo Castle, which was closer to the area (Ito, 2015). It is hard to find any correlation between current Shibuya and the old samurai decades later. So, what factors triggered the city growing in Shibuya? Throughout the history, there are many elements influenced the development of Shibuya, but the unique location and the development of the railway system in Japan are two basic and vital factors which led to the prosperous of Shibuya today and these two factors supplemented each other.

From 1868, Japan was experiencing an epochal period of social revolution: the Meiji Restoration. Japanese started to learn western advanced knowledge, like steam trains, western administrative systems and industrialization, and used them for the city development. One of the important achievements of this movement was railway construction, which is the beginning of the development of Shibuya. In 1885, Akahane-Shinagawa line, the predecessor of Yamanote Line, was put into use and a stop was set up in the current central area of Shibuya. The line not only connected Shibuya with big cities, but the convenient transportation also attracted a few people to settle down in Shibuya area along the pathway. The increase of residents was a sign of the growth of a city, so in 1889, Shibuya as a city was founded.

In 1920, Tokyo started to urbanize, like many big cities in the world, a visual phenomenon of urbanization was burgeoning population and the resulting urban expansion (Takashi & H, 2014). Shibuya is located on the western outskirts of Tokyo; the prominent geographic location was likely

to attract many people to the central area of Tokyo. Besides, in 1923, after the Great Kanto Earthquake in Japan, large numbers of people moved into Shibuya because of the higher and more secure elevation. With the increase in population, Shibuya ward officially became a ward, a part of Tokyo, in 1932 (Ito, 2015).

In some respects, the development of railway system in Shibuya promoted the population movement during this time. In 1926 and 1927, Tokyu Toyoko Line and Ginza Line set up their stop near the original Shibuya Station. Moreover, in order to face huge pedestrian flow and join different lines, Shibuya Station was extended and reconstructed many times. The construction of the plaza in front of the station was one of the important points since it is a boundary between a transportation hub and streets of the city. Some businesses detected the advantage of being adjacent to the special area. In 1934, Tokyu Department Store opened next to the Shibuya Station, which greatly promoted the commercial development of the area around Shibuya Station, but it was hard to define this new function in zoning at that time.

Over the next few years, Japan went through the Second World War. Rebuilding after the war became an urgent task for Tokyo's residents. Compared to many places that suffered huge losses, Shibuya had not been damaged heavily. With the postwar recovery work, many people swarmed into the central area of Tokyo, which led to a second urbanization and the congestion became more serious (Takashi & H, 2014).

In 1964, Tokyo hosted the summer Olympic Games, so many new facilities were constructed to welcome participants and huge numbers of tourists around the world. The planners of Tokyo encouraged the building of retail stores, commercial centers and office structures in Shibuya to reduce the pressure of central business area (Cybriwsky, 1988). From that

point on, the City positioned Shibuya to transform from single residential area to a multifunctional district. Over the next few decades, Shibuya continued to develop over time, but the city context and orientation of development have been basically set.

#### Current situation and problems in the central area of Shibuya

The historic accumulation formed Shibuya into what it is today, and it has continued to influence the city over time. Up to now, Shibuya is one of the busiest and most bustling areas in Tokyo and as one of special wards tied with Shinjuku and Ikebukuro, Shibuya plays an increasingly significant role in current Tokyo metropolitan area. The large crossing in front of Shibuya Station and various recreation facilities attract a many locals, and tourists spend time and money there: especially the younger generation, which boosts the economic boom and Shibuya's reputation in the world.

In addition, there are eight lines (JR Yamanote Line, Saikyo Line, Tokyu Toyoko Line, Den-en-Toshi Line, Keio Inokashira Line, Tokyo Metro Ginza Line, Hanzomon line and Fukutoshin Line) go through the central area of Shibuya. Every week, 2.4 million people will arrive or pass through Shibuya Station to their destinations. The square in front of the station gets great development because of the huge volume of passenger flow. Many retail stores opened in or near Shibuya Station to increase their earnings, but in the same time, they become a highlighted space in Shibuya urban construction.

However, with the development of suburban areas in Tokyo in recent years, many smaller districts, like Ebisu and Roppongi, take a part of the population away from big areas. According to

data from JR East, the passenger numbers of Shibuya Station declined after 2012, and the demand is increasing in Ebisu and Roppongi areas (“東京”, 2016). The shedding of the population is a warning for the government of Shibuya Ward. Therefore, facing current urban problems to renovate the city space become a big task for Shibuya today.

There are three obvious problems can be easily found in Shibuya central area. First, the spatial structure of Shibuya’s central area is too complicated to directly arrive at destinations, because the city pattern is irregular. Second, the insufficient space in the central area limited the development. It is an inevitable outcome from history. New and old interests and facilities were gradually assembled in one area without management, which led to the low-efficiency land use. Third, disordered transportation system. Even though the public transportation is extremely convenient in Shibuya, the spatial construction of station building is complex and confusing. Finally, near to railway station is a large bus terminal. The connection between two types of public transportation is poor and the roads in Shibuya are narrow, which results in traffic jams and illegal parking.

#### TOD Model with Japanese Characteristics

Japan went through an asset price bubble from the end of 1986 to 1991, which was preceded by a period of economic downturn, especially in the urban areas. Stagnant economic conditions, accompanied with a lot of social problems, alerted the Japanese government to explore a new way for city regeneration. In the background of this time, Koizumi Junichiro, the Japanese Prime Minister decided to revitalize Japanese economy by implementing the New



Urban Regeneration Plan in 2001. In order to achieve this goal, the Japanese government conducted an urban regeneration survey on a national scale to widely collect ideas from the public. Finally, they got 832 plans from different cities, and 504 plans were related to transportation hub (Takashi & H, 2014).

It was not an unexpected result since throughout history, the development of the whole Japan was extremely depended on the railway lines; and up to today, the railway line still is one of most popular ways to travel. Compared with the other developed countries in the world, the usage rate of the railways is higher (Figure 1). Takashi Yajima and H. Leda think that this phenomenon is closely related to two factors: the sudden increase of the urban population by 300% and the popularization of cars.

The first and second urbanization (1920-1970) led to the enormous population growth in the Tokyo megalopolis, and the density of population at that time was higher than any western city. The railway construction needed to be increased to match the increased public need. Moreover, the main function of railway lines evolved from transporting goods at the early stage to transporting people, so people who lived in the high-density surroundings for a long time were likely to continue this traditional trip mode.

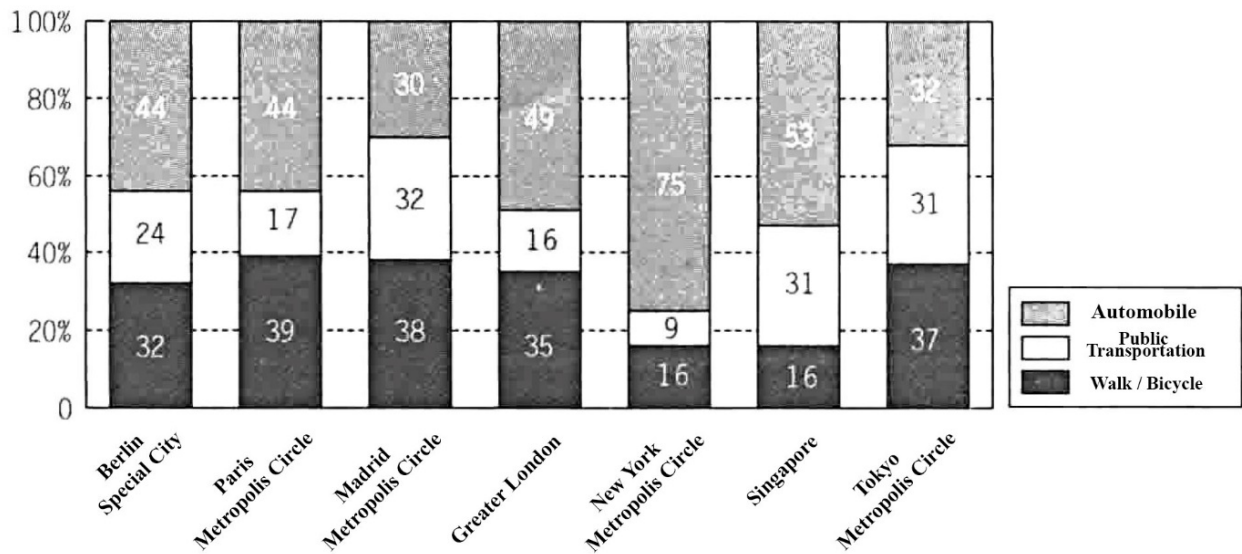


Figure 1: Distribution of Trip Modes in Big Cities (Takashi & H, 2014).

Many western cities had a long period when the city development depended on their rail systems; however, the popularization of automobiles changed this situation. The Japanese copied the western system, and the appearance of the vehicle changed the traditional railway system and city development model. Many people moved out of the urban area because of cheaper housing and went to work by private cars. With the increasing number of automobiles, especially private cars, high traffic became a big problem, and the flexibility of car travel exacerbated the disordered urban expansion in some ways. But this development trend did not last long after the asset price bubble. The economic bubble reduced the land value in the urban area and people could afford a house near the place they work. In addition, compared with western cities, the road development in Japan was sluggish because of many factors like the national policies, geographical conditions, and unique culture. The busy traffic resulted in many people no longer wanting to live far away from their workplaces.

The fundamental realities of Japan dictated their unique transit development model, similar to “transit-oriented development” (TOD), which was created in the United States. TOD had been widely used in many western countries, but the original intention and implement methods were different. Nikken Sekkei, a reputable Japanese architecture firm and a core organization involved in the Shibuya redevelopment project, published a book in 2014 called Integrated Station-City development: The next advances of TOD. The book elaborated on the practice of TOD under the unique Japanese context. The firm indicated that creating a “Compact City” should be the main goal for current Japanese cities, in order to achieve economic renaissance and sustainable development in the urban area. And as some popular transportation hubs have the potential to gather a large number of people, the Shibuya Station redevelopment center combined with the construction of infrastructure, is one of core strategies used in many cities renovated projects. The TOD model has the potential to significantly enhance city enchantment.

Development forms of the TOD transportation hub in big Japanese cities can be divided into three types. Type A is based on a layered system, as shown in Figure 2, with the underground train stops, squares, traffic facilities, workplaces, commercial stores, and recreational facilities all set in a mutual vertical space. The main advantages of this type are saving horizontal spaces and shorten the walking distance between different functions’ sites. However, this development form required higher construction technology and more complicated integrated planning. Shin-Yokohama Station and the Public Plaza is one of the representative cases of Type A.

The design of type B emphasized the connection between the underground railway station and city facilities. As Figure 3 shows that there is a vent that can directly connect railway

station space with the other spaces in the developing building, and in the reality, architects or designers usually use elevators, stairs, and underpasses to replace this vent. It not only improves convenience but also creates public spaces in the restricted urban area.

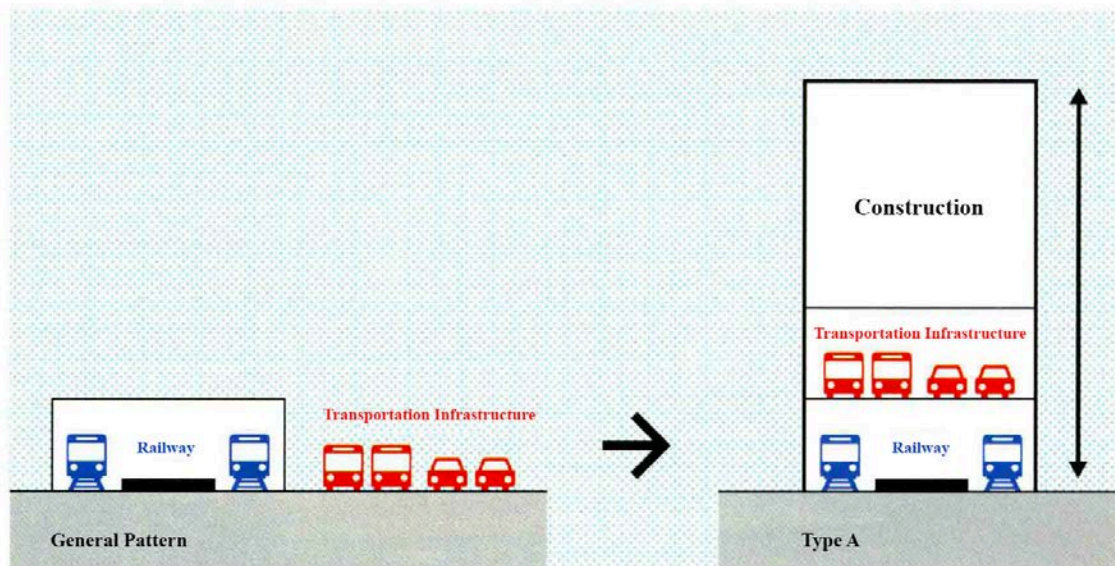


Figure 2: Schematic Diagram of Development Mode - Type A (Shikata, 2013).

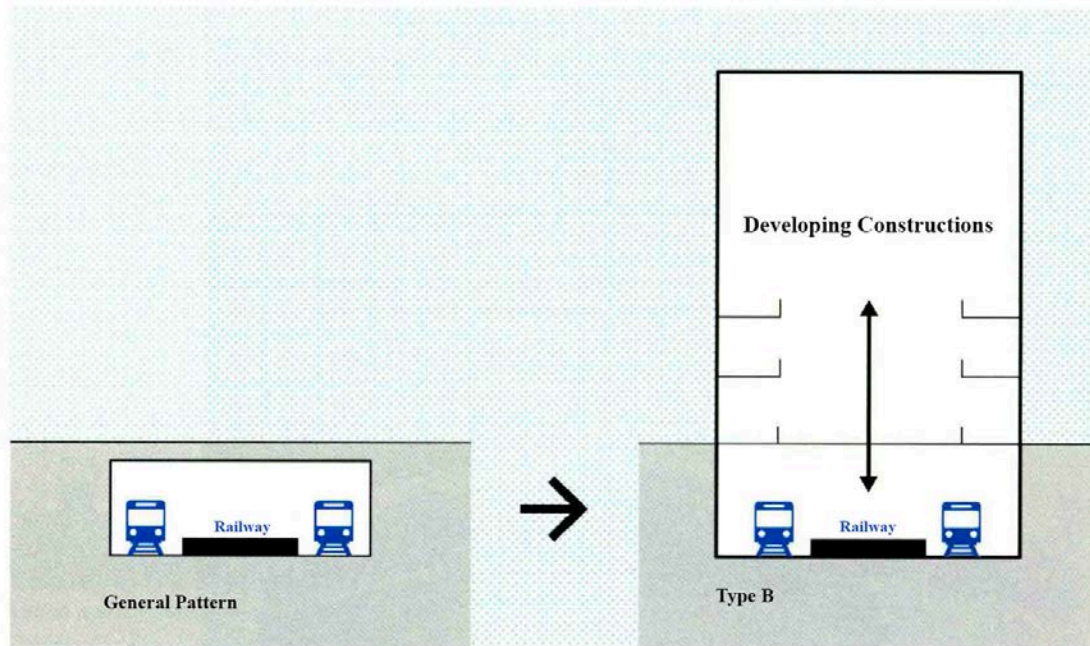


Figure 3: Schematic Diagram of Development Mode – Type B (Shikata, 2013).

Basically, Type C is a mixed use of Type A and Type B, but the development scale is no longer limited to the transportation hub itself but the whole area around it. Figure 4 presents comprehensive development in a station area, where various city facilities are overlaid in longitudinal spaces and connections are kept in the urban spatial structure. The architectural firm, Nikken Sekkei, defined this development model is the “Integrated City-Station development,” and along with the redevelopment tendency in Japan, many local governments want to use this mode to make compact cities and achieve their goal of urban revitalization. However, implementing this goal is difficult because the development under this mode usually is closely related to many big projects with different intentions and operators; and the construction, like a vast underground square and road adjustment, also need peoples to overcome many technical difficulties.

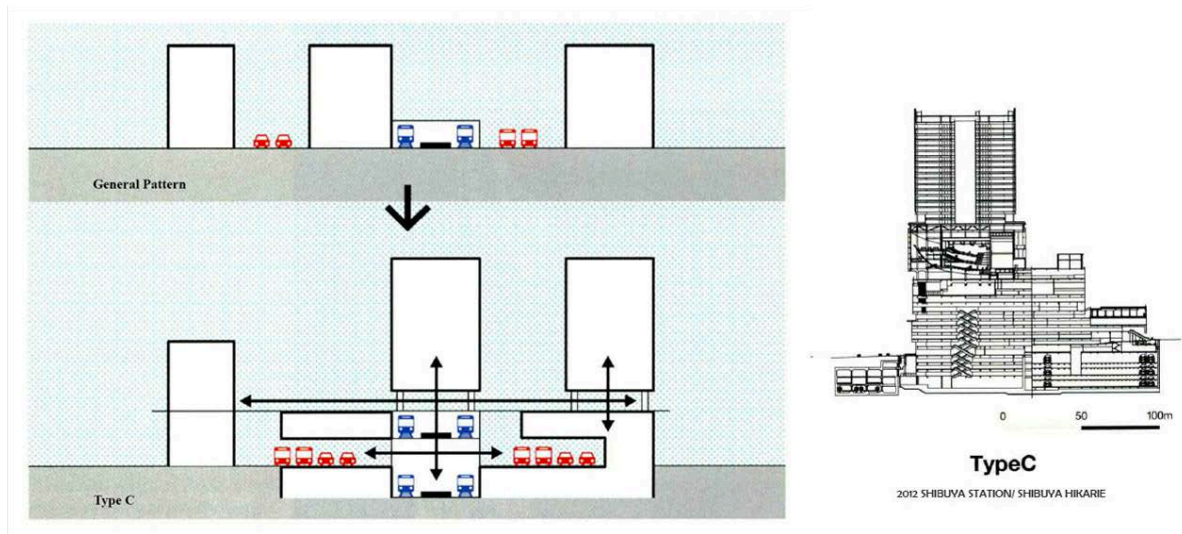


Figure 4: Schematic Diagram of Development Mode - Type C (Shikata, 2013).

From 1990 to now, these three development types of popular TOD transportation hubs have been implemented many times in Japanese cities; and combined with the New Urban Regeneration Plan in 2001, many urban areas have been reshaped by these three types. However, how the Japanese TOD model works in reality, what are the benefits of a “Compact City” and its meaning, and how TOD can achieve city renaissance are all questions that should be explored. This project will focus on the Shibuya Station Area Redevelopment Plan, and the ongoing practice of Type C, to understand the new utilization of TOD mode in Japan.

## Redevelopment Plan for Central Area of Shibuya

Shibuya Station and the area around it were defined as the Urban Renaissance Emergency Development Area in December 2005 (Shikata, 2013). The Shibuya Station District Infrastructure Development Committee was composed of experts, government officials, and railway companies,



and was set up at the same time to draw up a plan for Shibuya in the future. It is the signal of the beginning of the redevelopment project in Shibuya. The guidelines made by the committee have been examined and updated many times, and the implementation of the plan coincides with the Shibuya Station Area Land Readjustment Project and Railways Improvement Project. There are 5 construction sites successively involved in this long-term redevelopment plan and 1 of them, Shibuya Hikarie, was a successful case completed in 2012. The distribution of five sites in Shibuya central area can be seen in Figure 5.

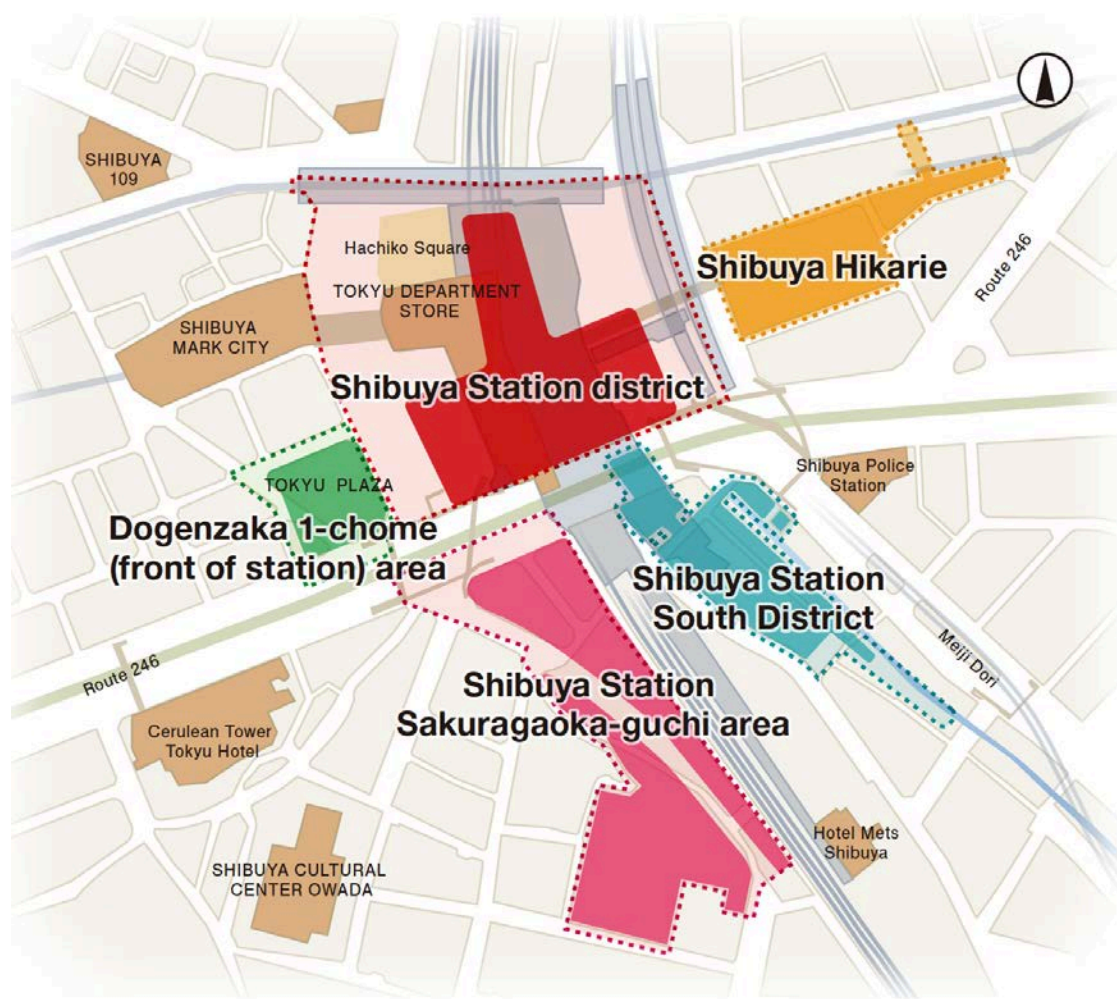


Figure 5: Distribution of Construction Sites. Retrieved from: [http://shibuyaplusfun.com/media/news/leaflet\\_EN.pdf](http://shibuyaplusfun.com/media/news/leaflet_EN.pdf)

In general, the Shibuya Ward is in charge of the overall redevelopment plan, but every individual planning site has been delegated to private corporations (Ito, 2015). Since the Japanese National Railway company was facing a large economic problem from the 1960s to 1980s, the government privatized the railways to save the problem. Later, a few private companies successively entered in to Japanese railways market. However, the profit from railways is more than enough to sustain a company, so many private companies started to invest in real estate. Commercial businesses along their railway lines (did what?) and the phenomenon accelerated after the Second World War (Takashi & H, 2014).

Up to now, railway companies held much territory in Tokyo and used it to increase their benefits by bringing in various commercial activities and residents; but a prerequisite of this economic growth is population. The investment of infrastructure not only enhances city development but also is able to keep a stable population. Therefore, it is not hard to understand why Japanese railway companies are principal participants in a city plan. For example, in Shibuya central area's redevelopment plan, Shibuya Station district was conducted by three private railway companies, Tokyu Corporation, East Japan Railway Company and Tokyo Metro Co. The Shibuya Station South district and Shibuya Hikarie are operated by Tokyu Corporation. These private companies cooperate with the government, landholders, experts, and various community leaders to negotiate the integrated development of the Shibuya Station area.

The content of the redevelopment can be divided into two parts: one is Shibuya Station's internal reconstruction and the other part is the four construction sites around it. As for Shibuya Station itself, first, the internal structure is too complex and crowded. As mentioned above, new



visitors usually lose their direction at the beginning when they get off trains in Shibuya Station. Even though the guiding signs are carefully designed, new visitors, especially foreigners, find it difficult to get to the exit or transfer trains.

Figure 6 is the map of the internal structure of Shibuya Station: there are 3 layers on the ground and 5 layers under, and each layer is occupied by different railway or subway lines. The platform of each line is independent, so if customers want to transfer to a different line, they must walk more and pay more times. The outcome is an accumulation, because each railway or subway line was built at a different time and the operators are also different.

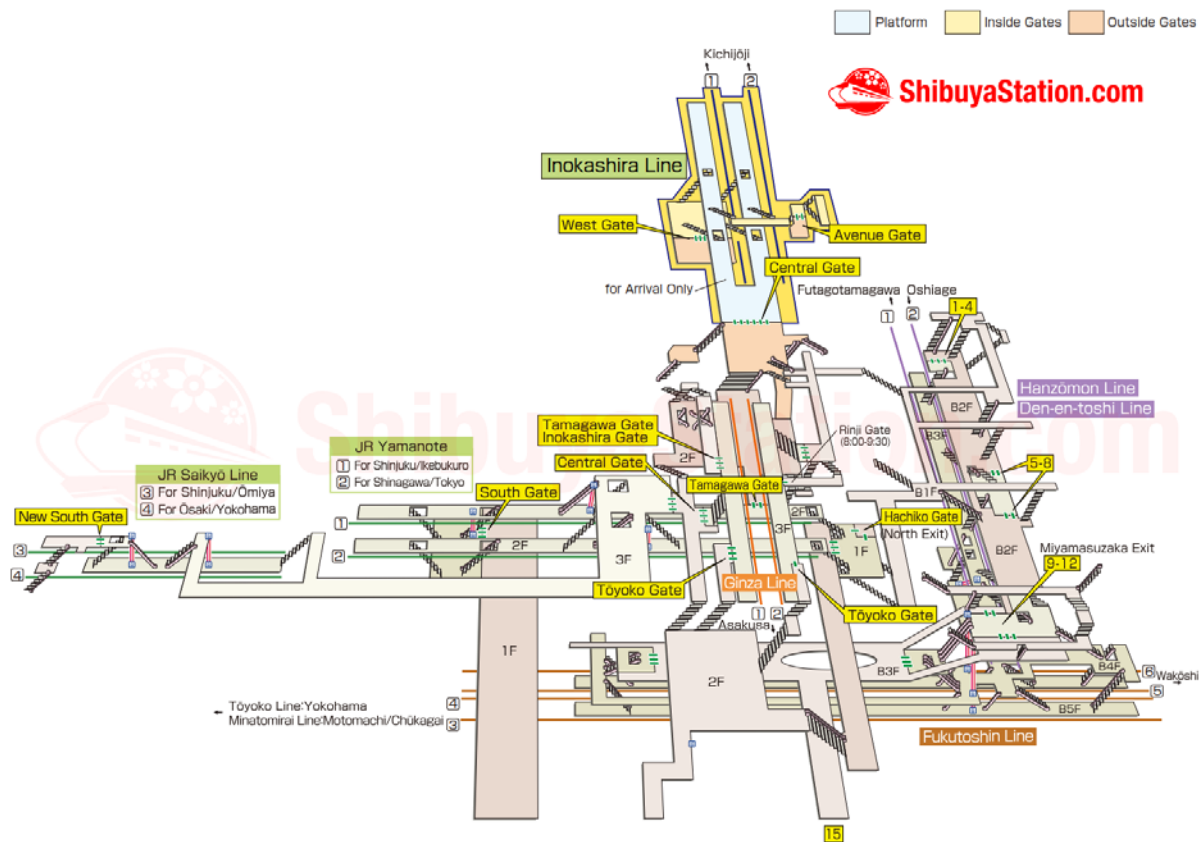


Figure 6: Internal structure of Shibuya Station. Retrieved from: <https://www.shibuyastation.com/shibuya-station-map-finding-your-way/>

There are several strategies mentioned in the plan to save this problem. First, Tokyu Toyoko Line moves from the surface layer to underground to interconnect with the Tokyo Metro Fukutoshin Line (B5F). The move not only achieved cooperation between different railway companies but made a large space on the ground for facing the problem of insufficient space. Second, the Saikyo Line will move its platform parallel with Yamanote Line platform, as shown in Figure 7. The change will expand the platforms and reduce the distance to transfer. Third, which transforms the Tokyo Metro Ginza Line platform from a solitary “island” platform (Figure 8) and moves the whole platform into Shibuya Hikarie. The purpose of this change is to expand the space of the transfer area and improve the connection between the train station and the city. In all, as shown in Figure 9, after optimizing the railway lines and platforms’ shape, the Shibuya Station District will become simpler and more integrated.

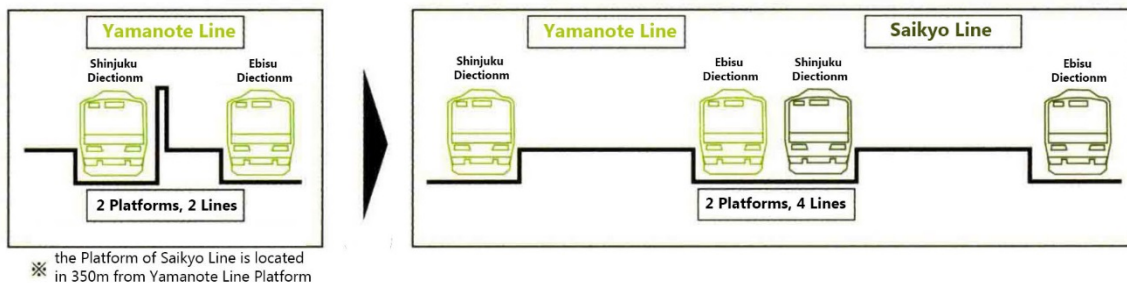


Figure 7: Change of Platforms – Yamanote Line and Saikyo Line (Shikata, 2013).

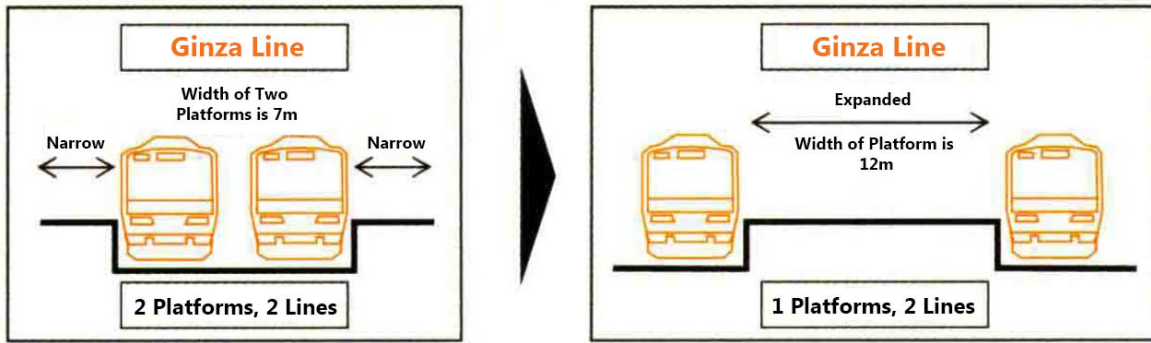


Figure 8: Change of Platforms – Ginza Line (Shikata, 2013).



Figure 9: Contrast Map of Railway Reconstruction (Shikata, 2013).

The second problem is the disordered transportation system. The transportation there mainly refers to buses and trucks, which either stop at or pass stations. As mentioned above, Shibuya Station cannot be simply defined as a trail station: the east and west sides of the station have many bus lines and terminals, which increases the degree of crowdedness on the ground. In addition, as one of most popular commercial centers, many trucks park there for unloading goods to the stores in or near stations. Insufficient space in the station square usually results in traffic jams and illegal parking. These two factors lead to an increase in poor traffic conditions and

potential security issues. The current situation can be seen in Figure 10.

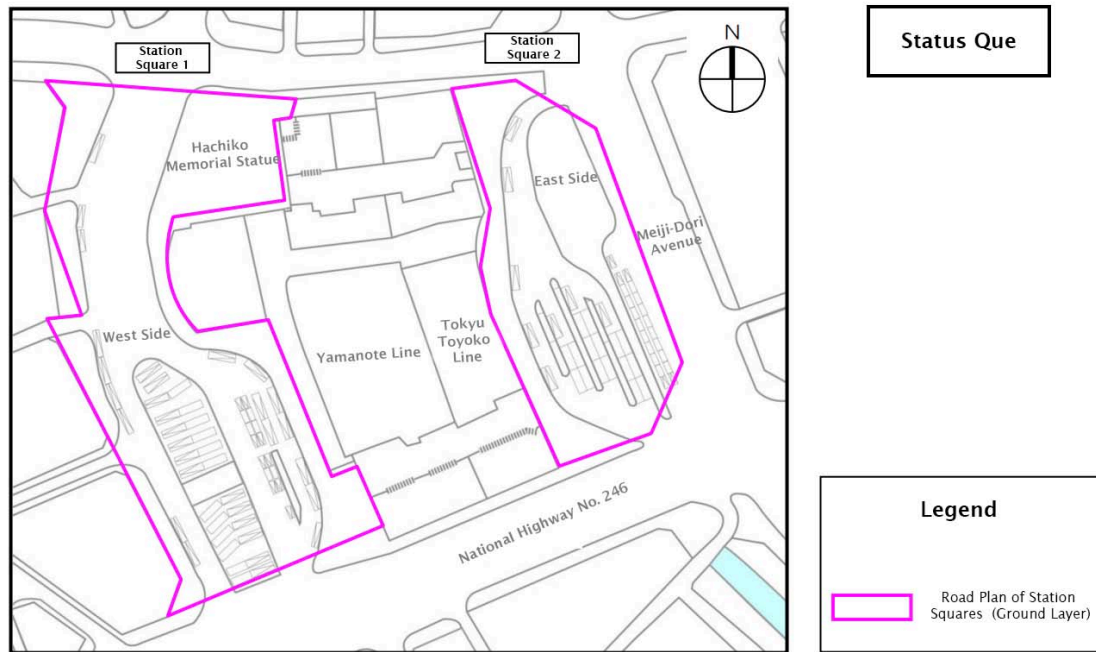
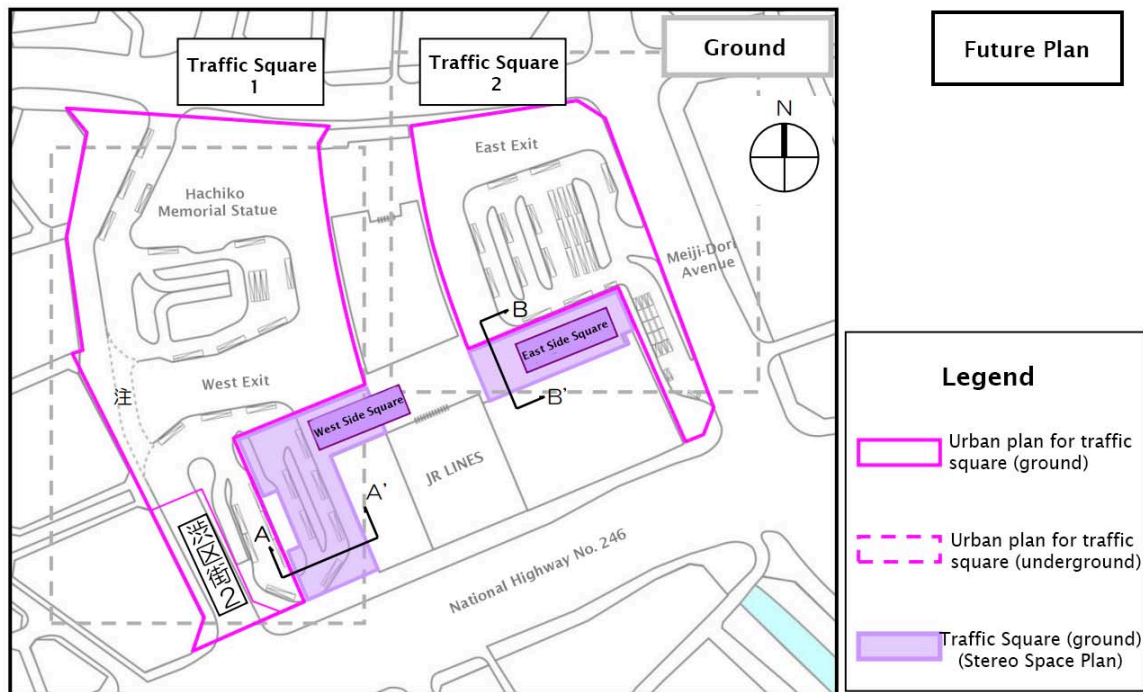


Figure 10: Status Que of Shibuya Station Squares. Retrieved from:  
[http://www.city.shibuya.tokyo.jp/kurashi/machi/pdf/gaiku\\_a.pdf](http://www.city.shibuya.tokyo.jp/kurashi/machi/pdf/gaiku_a.pdf)

In order to solve this problem, the station squares will be reshaped and used for relieving the traffic congestion. Also, the road around Shibuya Station will be adjusted to fit the change to the squares. Figure 11 presents an entire plan for the squares in front of a station. Besides, two vertical areas will be built under the ground to alleviate the illegal parking problem. In this way, trucks will have enough space to park and unload goods, which not only reduces the degree of congestion on the ground, also ensures the safety of the pedestrian on the ground. In addition, there are basement floors of two vertical areas that are separately connected with Shibuya Underground Street and two subway lines: Hanzomon Line and Fukutoshine Line, which allow for transfer between different trip modes.



NOTE: The regulation for common vehicles should be discussed further.

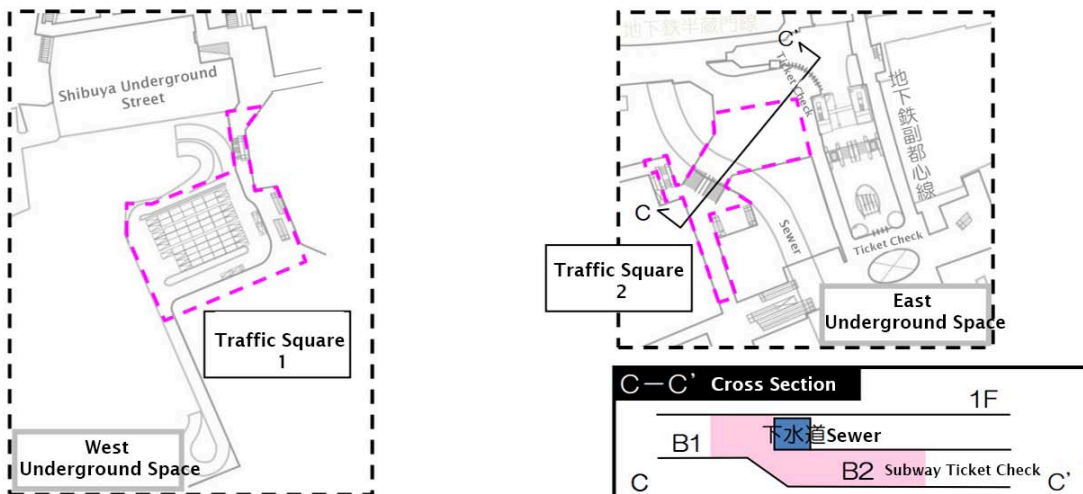


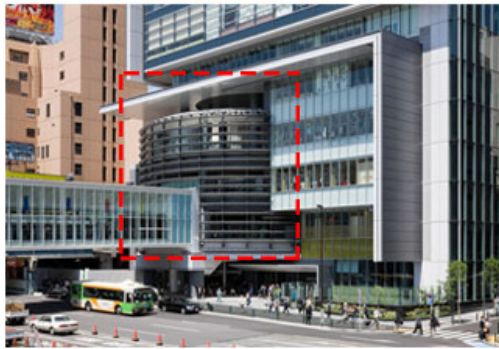
Figure 11: Plan of Shibuya Station Squares. Retrieved from: [http://www.city.shibuya.tokyo.jp/kurashi/machi/pdf/gaiku\\_a.pdf](http://www.city.shibuya.tokyo.jp/kurashi/machi/pdf/gaiku_a.pdf)

For the whole city redevelopment mission, the committee considered that setting up “urban cores” and improving the “pedestrian network” are two methods to renovate the city in

different dimensions. The concept of urban cores refers to the combination of city spaces in a vertical stack. Since the situation in the central Shibuya area is a high-density population and unique terrain, the city's vertical development is a corollary. In contrast, perfecting the pedestrian network around Shibuya Station provides a safer and easy-to-understand surrounding for visitors and improves the pedestrian circulation across the area.

It is not hard to find skyscrapers in Shibuya; and in the redevelopment plan, 4 new high-rising constructions will be completed in 10 years as a strategy to renew the city (Shibuya Hikarie has completed). The urban core will be set up in the lower levels of these skyscrapers and Shibuya Station. For example, an urban core has been found in Shibuya Hikarie, from basement third floor to the fourth floor on the ground, visitors can easily and safely transfer between layers and the barrier-free facility is set up to improve accessibility (see Figure 12). In addition, the urban core is designed to promote the city's ecology by creating gaps between buildings to increase the air circulation and reduce the consumption of resources.





Urban Core in Shibuya Hikarie (Outside)



Urban Core in Shibuya Hikarie (Inside)

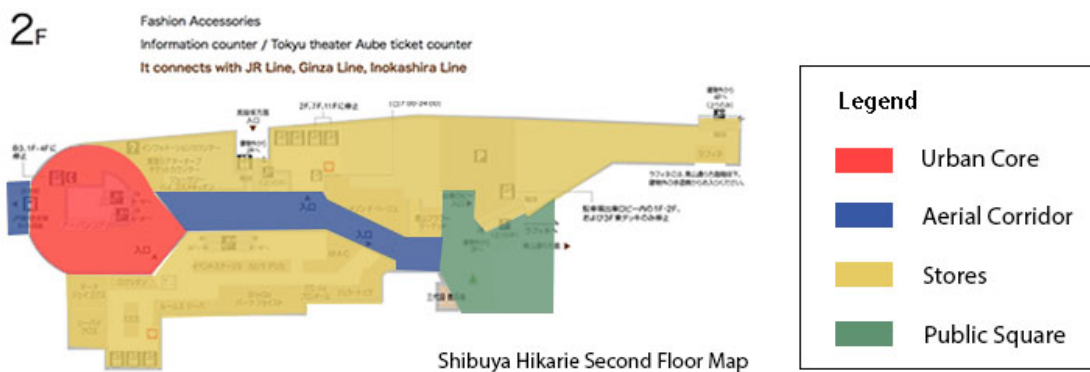


Figure 12: Urban Core in Shibuya Hikarie. Upper Photos Retrieved from:

[https://design.rhizomatiks.com/en/works/shibuya\\_hikarie.html](https://design.rhizomatiks.com/en/works/shibuya_hikarie.html); Under Map is edited from Shibuya Hikarie Floor Map. Retrieved

from: <https://www.tokyu-dept.co.jp/e/fa.hc.transer.com/shinqs/floor/2f.html>

If the idea of urban core is a strategy for the vertical connection of city spaces, the “pedestrian network” in central Shibuya is the method of horizontal spaces’ connection. The distribution of urban cores is highlighted in purple circles of Figure 13. Figure 14 presents the new plan of walkable routes that are built to connect skyscrapers and Shibuya Station by urban cores in three levels: overhead - the aerial corridors have been established; ground - the extension of squares around station and road reconstruction will enhance sidewalk system on the ground; and underground – the current underpass will be extended to a vast underground square that will

connect the subway lines on the third layer of station and the basements of skyscrapers. In this way, Shibuya Station will be a base spread out over the core spots in Shibuya Ward. Visitors can arrive and explore the central area of Shibuya without too many puzzles.

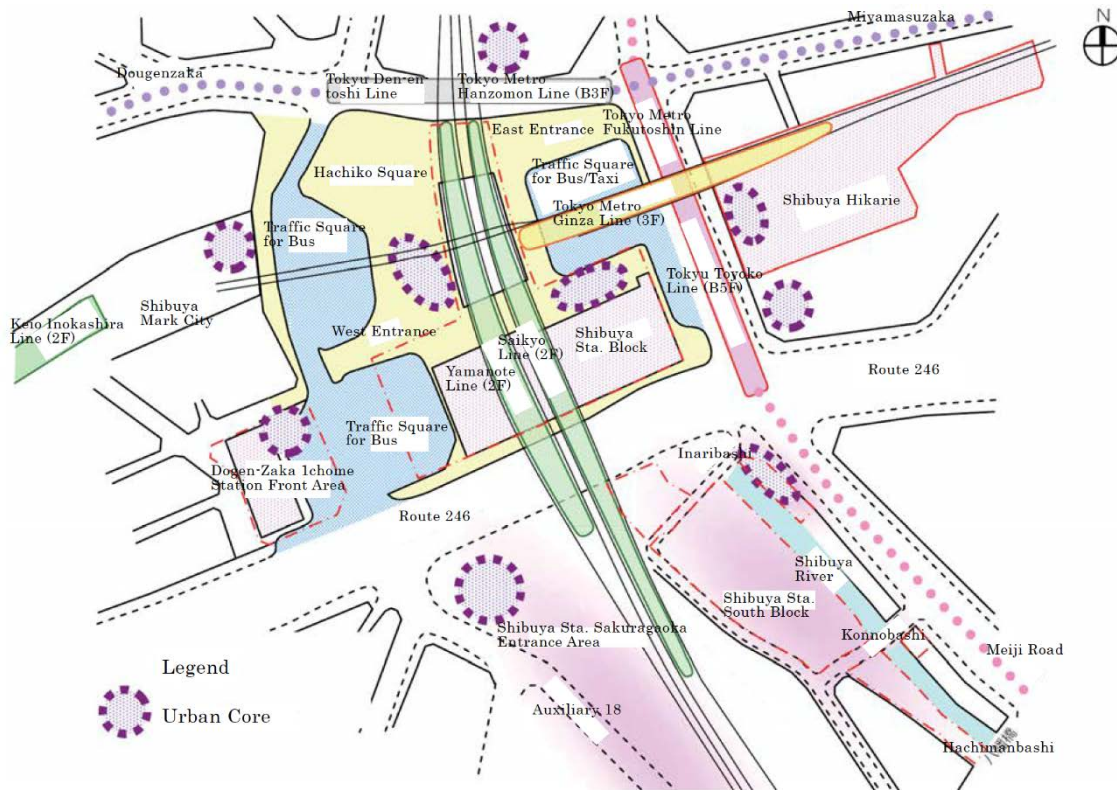


Figure 13: Distribution of Urban Cores in Shibuya. Retrieved from:

[http://www.city.shibuya.tokyo.jp/kurashi/machi/pdf/shibuya\\_shishin7\\_5.pdf](http://www.city.shibuya.tokyo.jp/kurashi/machi/pdf/shibuya_shishin7_5.pdf)





## The Concept under Integrated City-Station Development Model

The strategies used in Shibuya Station Area Redevelopment Plan have a common effect – reinforcing physical connections – which is the main idea from the Integrated City-Station Development model to make a “Compact City.” On the other hand, the decisions or strategies are made or designed by people from different groups, so how they work together and reach the consensus is an underlying connection to strengthen “Compact City” in the planning process. Therefore, connection, as the concept under the development model, can be displayed in two aspects to help people understand the operational process of the model: physical connection and cooperation. Physical connection refers to some visible construction projects which are links between various spaces functions in urban the spatial structure, and cooperation can be considered as a mental negotiation among the various groups that participated in the program.

In the internal development of Shibuya Station, as described above, there were three main changes to the railway lines. First, the platforms of Saikyo Line and Yamanote Line in Shibuya Station was merged, which was a physical strategy to simplify the railway system by shortening the distance (see Figure 15). Even though these two lines are operated by one Railway Company, JR East, the decision was made after discussing with the other members in the Shibuya Station Distract Infrastructure Development Committee, since any move in the area should fit the main aim. The main cooperation there was the individual railway company working with the related government department.



Figure 15: The Diagram of the Railway Lines Reconstruction (Left: before, Right: After). Retrieved from:

[https://www.bcj.or.jp/en/what/src/srilanka01\\_04.pdf](https://www.bcj.or.jp/en/what/src/srilanka01_04.pdf)

Second, as Figure 15 shows that Tokyu Toyoko Line disappeared on the ground after reconstruction because the line moves down and interconnects with Tokyo Metro Fukutoshin Line (underground). The strategy of connection not only enhanced the convenience of transfer between two lines and the integrality of the station but saved land for development on the ground. The advantage of the physical connections can be clearly pointed out, but the realization process was complex. The project was completed in 2013 and there were two private railway companies, Tokyu Corporation and Tokyo Metro, in charge of this interconnected process. As the first case of railway lines interconnection by two companies, the project went through many versions and demonstrated cooperation in different aspects.

Above all, many analyses should be done to assess the success of this project. And since the project is a component under the redevelopment plan, besides the internal analyses of the two railway companies involved, the government officers and experts in the Development Committee also should analyze the benefits in more comprehensive view to ensure whether the project met city goals and the public interest.



Figure 16: Tokyo Metro President Yoshimitsu Oku (right) and Tokyo Corporation President Hirofumi Nomoto (left) on press

conference. Retrieved from: [http://www.ejrcf.or.jp/jrtr/jrtr63/pdf/6-13\\_web.pdf](http://www.ejrcf.or.jp/jrtr/jrtr63/pdf/6-13_web.pdf)

Third, because the move of Tokyu Toyoko Line faced many difficulties, the project relied on the high-level engineering and good design of the railway tracts. For example, Tokyu Toyoko Line was moved from ground floor to five levels of the basement (see Figure 17), which was a technical challenge. Also, expanding underground space required coordination, even though two lines shared the same tracks and the reconstruction of railway track did not occupy too much extra underground space. The customer flow consequently increased and need more space was

needed after the merging. Therefore, collaboration emerged between railway companies, railway technical research institutes, and design studios to save these problems.

For instance, in this project Tokyu Corporation handled the design and actual construction with Tadao Ando, a famous architect, and Figure 2 is the Schematic Map of the interconnected design. In addition, Pacific Consultants, an infrastructure consulting company, has been hired to figure out the engineered challenges of expanding existing underground space and transforming it to be a vast opening underground square. The company respectively assigned two engineers for two railway companies, and they are the “job masters” to negotiate the content of the project in order to get the best outcome from the cooperation.

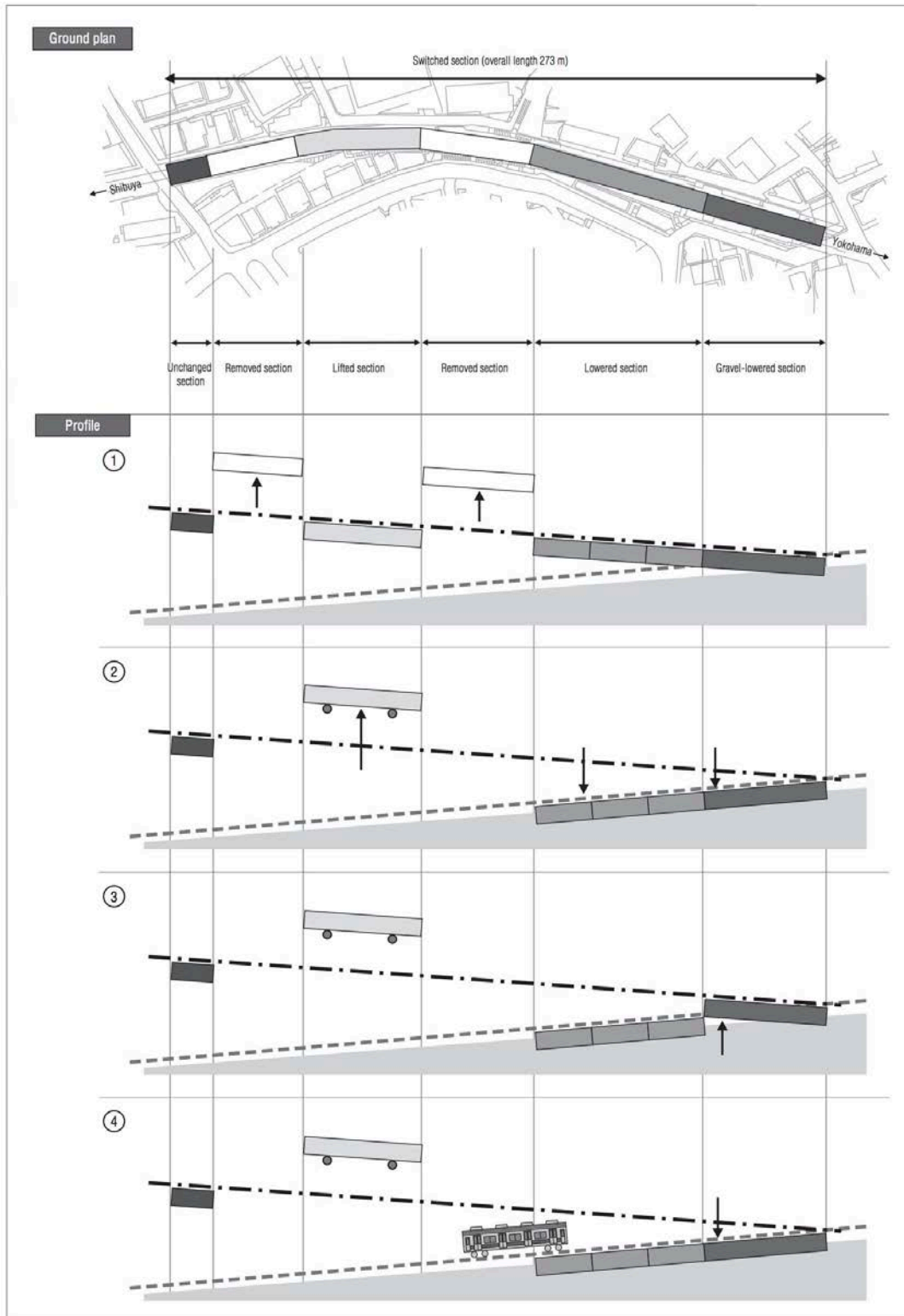


Figure 17: Overview of Construction to Switch to Underground Track. Retrieved from: <http://www.ejrcf.or.jp/jrtr/jrtr63/pdf/6->

Third, the platform of Ginza Line will move eastward and connect with Shibuya Hikarie (see Figure 15). It is a strategy made by the committee under the redevelopment policy to narrow the gap between a transport station and the urban infrastructure. The benefit for the public is that the visitor can arrive at Shibuya Hikarie directly without confusion, and the transfer distance will be reduced by “Urban Core” because the new location is right above Tokyu Toyoko Line, Metro Fukutoshin Line, and the new east traffic square (see Figure 18). The Ginza line is operated by Tokyo Metro, and the main developer of Shibuya Hikarie is Tokyu Corporation. As mentioned above, the private railway company owned and invested in land along with the railway tracks to increase earnings. Therefore, the main participant groups in this project are Tokyu Corporation and Tokyo Metro.

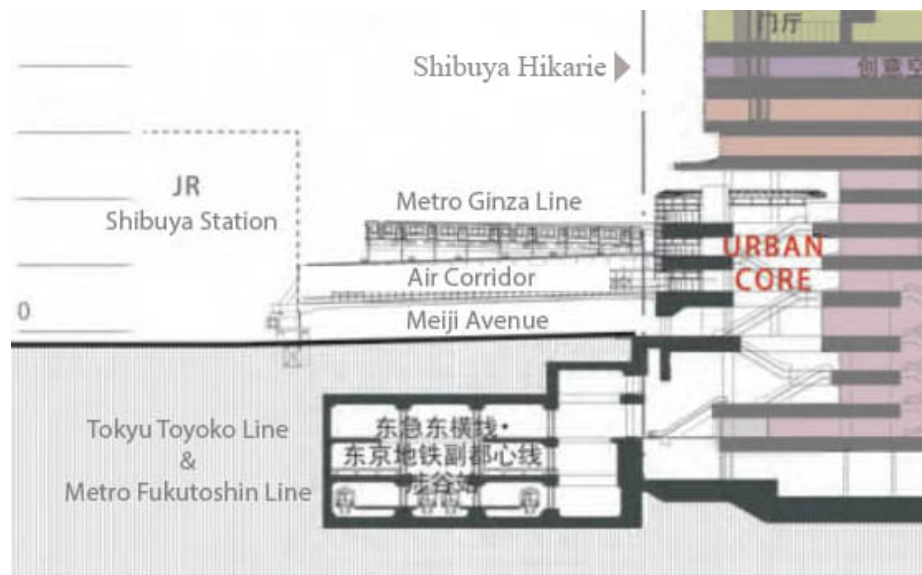


Figure 18: New Location of the Ginza Line's Platform (Cross-Section). Retrieved from: <http://www.hikarie.jp/en/>

It is worth mentioning that the frequent cooperation from different railway companies improved the railway system and city development. In Japan, there are three types of railway owners: first is the JR Company, which was privatized from the national railway company, so their railway lines mainly make the connection between big cities over the whole country. The second private railway company, Tokyu Corporation, is the best representative of the wholly private companies. The private railway lines mainly connect the core area of a city with its suburban districts. The third is the private metro companies like Tokyo Metro Co., Ltd. Their track constructions usually are set up in the urban area. In the past, three types' railway companies lacked cooperation, which limited the availability of the railway system. One of the most obvious problems was the difficult transfers because of different tickets. Different railway companies provided different tickets, so if the passenger wanted to transfer lines between different companies, they had to buy tickets at least twice.

Fortunately, integrated development (IT) as a new concept is increasingly accepted by Japanese people and company in the modern time. Along with the rapid development of IT, in November 2000, JR East introduced an IC card (Integrated Circuit Card), "Suica", instead of traditional paper tickets and this card could be commonly used in any railway lines in Tokyo. Since then, many similar IC cards emerged and in April 2013, these IC cards were popularized in the whole country. It was a giant leap for the Japanese railway system since it removed the inconvenience transfer problem for the public and improved the relationships between different railway companies. In addition, the IC Card also can be used in many other ways, such as riding buses, paying in many stores, or in recreational facilities. In this way, many facilities that are



supporting people's basic life can be connected by a small card, which refers to a wider cooperation in many communities.



Figure 19: Various IC Cards in Japan. Retrieved from: <http://bbs.qyer.com/thread-877945-1.html>

The setup of “Urban Core” (see Figure 13) in some big buildings and the reconstruction plan of the “Pedestrian Network” both show the significance of the walking trip in the urban area by enhancing and amplifying the public infrastructure. In the future, visitors can easily complete their transfers in vertical or horizontal axis by these Urban Cores and Pedestrian Networks. The idea of Urban Core was created by the committee, but the implementers are different groups. In the redevelopment plan, there are five construction projects (including Shibuya Hikarie and Shibuya Station) were planned to be built or rebuilt with Urban Cores. Even though the Urban Core belongs to the public infrastructure construction, the implementation is included in the building construction.

In short, the developers and some public organizations are also responsible for the urban public infrastructure construction. For example, the Shibuya Hikarie project on the demolished site of Tokyu Bunka Kaikan was a coordinated effort by Tokyu Corporation, owners of the neighboring district, and the owners of Shibuya Station (Tokyu Corporation, East Japan Railway Company, and Tokyo Metro Co., Ltd.).

The reconstruction project of the “Pedestrian Network” should be analyzed with the other related projects: the reforming of station plazas, because both rely on the adjustment of land use. Especially on the ground floor, the proportion of road surface, sidewalks, and station plazas area will be greatly adjusted in the redevelopment plan (two station’s plazas will be expanded and contain some bus stops inside, and the west road will be narrowed) to create a pedestrian urban space in Shibuya, thus encouraging people to take public transportations instead of private cars.

In the process, the project will be decided after many conferences between the redevelopment committee and related groups in charge of the related projects. The new traffic plaza construction and road construction will affect the benefits of the railway companies and bus companies, so they are the project owners to involve. The government role there is not only evaluate the feasibility of the project but also adjust land use and provide policy support.

For instance, Taku Tetsu-hō (宅鉄法), a housing-railway act, was published in 2005 to ensure the railway land use in the urban area. The act gives railway companies rights to acquire necessary lands for railway constructions (includes the construction of station squares) by exchanging land with individual landowners.

Besides, establishing four huge buildings themselves is a strategy to further compact the urban area because the vertical expansion of urban space will lead to various functions existing in one integrated space. For example, as Figure 20 shows that there are many facilities assembled in Shibuya Hikarie, like retail shops, workspaces, entertainment, disaster prevention, and culture. Therefore, as a mix-used skyscraper, Shibuya Hikarie is endowed with a lot of meaning. The functional aggregation is attributed to a huge number of cooperative relationships between related groups or individual operators. In general, the project owners will get the return on

investment by renting space to retailers and companies. On the other hand, the retailers and companies will get better financial results because of the superior location and environment. Theaters and galleries are set up for culture transmission, so the relevant government department and cultural organizations must involve in this project. Moreover, some public space, like disaster prevention areas and green space, will be reserved in this building to fit public interest and environmental aims. For these non-profit projects, government and building owners will share responsibility.

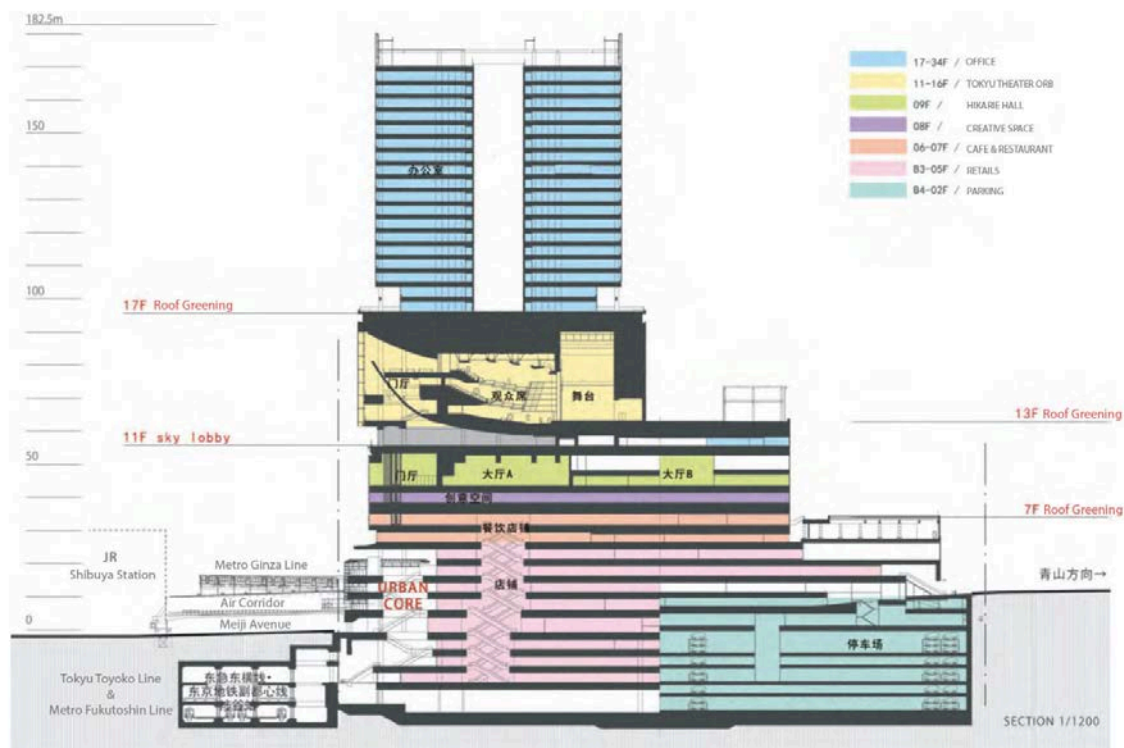


Figure 20: Shibuya Hikarie Building Functional Introduction. Retrieved from: <http://www.hikarie.jp/en/>

In all, the planning process for Shibuya Station Redevelopment Plan under Integrated City-Station Development model emphasizes a “Public-Private Cooperation” concept. As one of the

Japanese basic state policies mentioned that “if the city problems could be saved by the public, let them do what they want.” Indeed, analysis of the planning process of the Shibuya Station Redevelopment Plan shows that the participation rate of private companies is higher than many other countries, and the construction of urban infrastructure in Japan usually relies on the investment from private communities.

The main duty of the Japanese government in the planning process is to set the overarching goal and clarify the orientation of development for the Japanese future, such as urban renovation with the TOD model. Then, the government will select sites for the implementation, like listing a few special urban renaissance districts and classifying these sites by evaluating their current conditions and urban functions. Shibuya was one of renovation sites, and as a sub-center city in Tokyo, it has corresponding urban function. The relevant policies will be respectively formulated to match different districts’ conditions, and the local government has the duty to detail the policy.

After that, a committee with government officers, experts and other stakeholders (like Shibuya Station District Infrastructure Development Committee) will be established to be in charge of the redevelopment plan instead of a simple urban planning department or company hired by the government. The stakeholders have rights to propose projects in the committee to fit the main goal and their own benefits, and experts and government will integrate feasible proposals in the planning and update it every year.

Different stakeholders hold various city redevelopment projects, some of them work together, and some of them hire related organizations to help them make the projects come true. There are many ways of cooperation between different communities because the processes are

flexible. In addition, the stakeholders also pay attention to urban development and share responsibility with government and non-profit organizations, such as public infrastructure construction and environmental protection causes because they know that they will get benefits from those investments. For example, when Tokyu Corporation, East Japan Railway Company, and Tokyo Metro Co., Ltd perfect the basic facilities of their railway lines in Shibuya, many people are likely to travel by railway and stop by Shibuya Station and the area around it for many purposes. In these way, three railway companies are able to gain more benefits along with the increasing population.

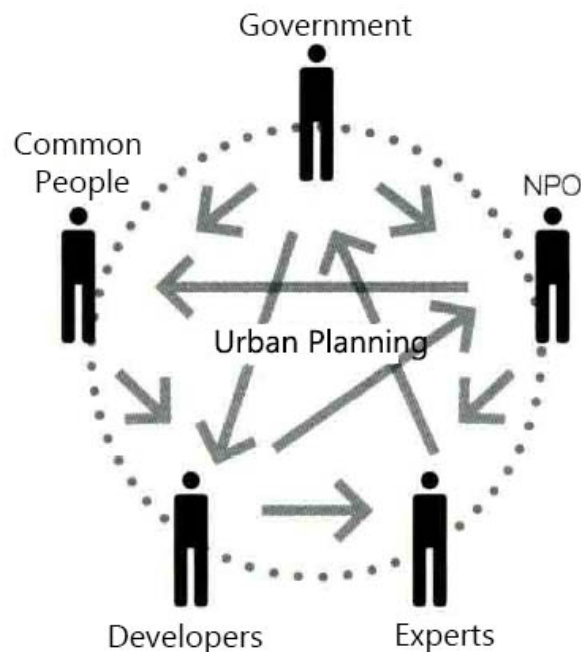


Figure 21: Japanese Planning Process in Shibuya Station Redevelopment Plan. (Shikata, 2013)

Besides, the government really cares about the degree of participation of common people in Shibuya Station Redevelopment Program. Kazuhiro Okuno, an official in charge of urban development in Shibuya, said in an interview that “locals have also been involved in the development process to ensure that Shibuya is not just torn down and turned into something

that loses its vibrancy.” (Ito, 2015).

The related departments hold many activities to arouse the common people’s attention and enthusiasm for the construction. For instance, they held a photo exhibition to show the historical development of Shibuya Station and the area around it. Moreover, they created a few websites with the vivid and colorful pictures (see Figure 22) to invite people to pay more attention to the ongoing program, and the construction progress will be posted on websites every day. Locals may find community attachment from these activities and websites, thereby compacting a social connection in Shibuya.



Figure 22: Websites Created for Publishing Future Shibya Plan. Retrieved from: <http://www.youmakeshibuya.jp/>

## A Compact City

Urbanization refers to the population shift from rural to urban areas, which is a universal phenomenon happened in many big cities around the world and it closely links to modernization, industrialization, wars, and some changes in social structure. For instance, America and many European countries completed their urbanization after two industrial revolutions. However, the dramatic growth of the economy and population in urban areas usually lead to many problems such as public health, affordable housing/land, and traffic congestion. However, the basic problem of urbanization is the how to balance the relationship between population size and available urban spaces.

Two different attempts by developed western countries to stop the urbanization problem. One is urban sprawl, where the outskirts of cities are developed, and America is one of the representative countries. Many people move out of the urban area and live in low-density towns in the outskirts or “suburbs.” They travel a long distance to a downtown area for work and recreational activities in their private vehicles, and come back home for at the end of the day. The attempt may alleviate the problem of a poor living environment, but it leads to many new problems at the same time. For instance, unlimited sprawl increases the pressure of traffic system and public expenditure for maintaining roads: especially in some big auto nations where driving vehicles is the main trip mode for the public. Also, the model does not match some desired development themes, like sustainable and environment-friendly development, in the present time.

On the contrary, the second attempt to stop urbanization problems in many European



countries limited the urban sprawl phenomenon by efficiently utilizing existing urban land resources and perfecting public infrastructure. For example, enhancing land allocation efficiency by implementing mixed-use land use, using railway lines as the main trip mode to instead of private vehicles, and promoting other public transport and walking in the urban area are basic measures to build a “compact city.” The compact city concept was adopted by Japanese to renovate their cities, but in practice the implementation is different because of the various national conditions. The practice of “compact city” in Japan is based on TOD model, but Japanese shifted the focus of urban revitalization to the construction of railway station and infrastructure, which presented a new direction for urban development and planning.

After analyzing the Shibuya Station Redevelopment Plan, there are three main advantages of a compact city can be summarized from this practical case. Above all, a compact city maximized the urban land value. Comparing with a single type of land use, the mixed-use land creates extra value when various functions work together. In Shibuya Station project, the central area of Shibuya cannot be simply defined as commercial land even though there are a large number of stores and restaurants. Many art or educational exhibitions are held in the area to promote the Japanese culture. Many public spaces like small gardens are also created to beautify the urban space. Shibuya Station, as one of the biggest and most popular transportation hubs in Tokyo, is also located in the central area, which helps reduce the traffic pressure. These various functions are flexibly distributed in one urban space, and influence each other in a positive way.

For instance, the construction of city environment and public transportation attract more people to the area, thereby increasing the benefits for the store operators and land developers. In order to keep this upward tendency, they may be willing to invest money in government

projects. The responsibility of city development can be diminished because of the support from private companies, and they can put more attention on the other city works. For the public, almost all their daily needs can be met within the walking distance (750m-800m), since the basic necessities are assembled in one integrated area. People are then more likely to come back, thus keeping the city active. This positive circle not only adds extra value to the urban land but also creates a good social condition for the city renovation.

Second, a compact city will improve work efficiency in two ways. First, as mentioned above, almost all functions are set up around the transportation hub, which means the distance between people's houses and work is reduced in the compact city. In addition, the integrated city-station development enhances accessibility among various urban spaces, so people can easily and quickly arrive at their work without confusion. Commuting time is saved to do something more worthwhile.

On the other side, when people in different fields are working in a compact space, they are likely to communicate and cooperate more. Sometimes, it is a good way to simplify work processes and create more new ideas. For example, in Shibuya Station Redevelopment Plan, the government, private railway companies, developers, and other local organizations broke the traditional planning process (where the government makes plans and then collects money from developers through various policies) and worked together from the beginning. In this way, this planning committee possesses more comprehensive ideas and is closer to real people's needs and benefits, thus, the implementation process becomes easier.

The third main advantage is that making a compact city is beneficial to environmental protection and energy savings, since the main trip mode in a compact city is using public

transportation. It is a way to reduce utilization rate of private vehicles, thereby cutting down the exhaust emission and energy use. According to the data from NTT Data Institute of Management Consulting, the energy used to move one person one kilometer by private car is six times more than by railway lines (Shikata, 2013). Considering population numbers and density in urban Japan, using the railway instead of automobiles is more significant for the environmental goal. In addition, perfecting the construction of pedestrian system encourages people to walk and ride the bike in urban areas, and those are more environmentally-friendly trip modes than the railways. In short, the most environmentally-friendly modes rely on districts where basic functions are highly centralized.

## Conclusion

As one of the developed countries in Asia, the Japan completed their urbanization earlier than many other Asian countries. However, as time goes by, the benefits of urbanization have weakened and a few urban problems were exposed, and even restricted the city development. Because of those problems, like many developed countries in the world, the Japanese began looking for a new development orientation for their future, and the Shibuya Station Redevelopment Plan is one of the practices for the urban revitalization. The integrated city-station development model, which was used in the Shibuya project, creates a compact city centered around a railway hub. Combining with the advantages of using the railways, the Japanese regrouped various basic functions in limited urban spatial structure and connected them with the railway station to solve current urban problems and make the city more convenient, sustainable, profitable, and ecological.

The practice of city redevelopment in Japan is a good reference for many developing countries in Asia since these countries have similar backgrounds and face similar urban problems. Due to geographical and historical reasons, the problem of balancing the huge population and limited urban land sources in Asia is more severe than in many western countries. For example, the population in Tokyo metropolitan circle was triple the population Paris in 2010, but acreages of two capitals are similar (Takashi & H, 2014). The fundamental conditions of Asian countries necessitate more accurate and complex plans for the redevelopment of their urban areas. In recent years, even though some Asian countries are seemingly developing rapidly, problems have emerged such as environmental pollution and traffic congestion.

As a forerunner in urban development, the Japanese have experienced many successes and failures, both of which can provide lessons for avoid mistakes in other Asian countries. However, any one city cannot directly copy the development methods from the other city completely, since a good plan must match with a city's unique conditions. For example, even though a few concepts of integrated city-station development modes such as "TOD" and a "compact city" were created by other countries, the mode used in Shibuya project is unique because all the measures are based on Shibuya's current problems and their planning organization.

In the end, a city plan, whether successful or not, depends on the acceptance and recognition of the public because any district is made up of people. Planning the whole city using professional knowledge, previous experience, existing planning laws, and using capabilities of people to stimulate their enthusiasm for urban development are all new topics for government and planners to explore.

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